3430 Evaluation August 26, 1981

Hazard Tree Evaluation - Quinault Ranger District

Forest Supervisor, Olympic NF

On August 10-12, Gregory M. Filip, Plant Pathologist with Forest Pest Management at the Regional Office, participated in a vegetative management session concerning Willaby Campground on the Quinault Ranger District, Olympic National Forest. Purpose of the session was to develop a plan for present and future management of all vegetation, including hazard trees, in the Willaby Campground. Others who participated actively in the session included Jim Pollack, Head of Landscape Management at the RO; Jim Olsen, Developed Sites Specialist at the RO; Susan Wong, Recreation Specialist at the SO; Jeff Amoss, Recreation Specialist at the District; and Gerry Dixon, District Silviculturist.

Willaby Campground is located in a stand composed of old-growth western hemlock, western redcedar, Douglas-fir, and Sitka spruce; and second-growth cedar, hemlock, and Douglas-fir. The existing campground will be redesigned with new roads, a new water system, and new camping and picnic units. While developing a vegetative management plan for the campground, hazard trees were evaluated.

A major portion of the east end of the campground is composed of second-growth hemlock infected with dwarf mistletoe (*Arceuthobium tsugense*). Trees with dwarf mistletoe do not become immediately hazardous after infection. However, severe infestations of dwarf mistletoe may result in reduced tree vigor and predispose infected trees to other serious pests such as root rots or bark beetles. Branches infected by dwarf mistletoe grow abnormally and can reach large size. Such branches are more likely to fail than healthy branches.

Dwarf mistletoes, being higher seed plants with chlorophyll, require light in order to produce aerial shoots and seeds. Mistletoe seeds do not require much light to germinate and infect host tissue. However, new infections will not produce aerial shoots until the proper amount of light is attained. A dense stand of infected trees such as the one in Willaby Campground will have several dormant infections until more light is provided. If the infested stand is opened up through the removal of some trees to form new units, the dormant infections in the residual stand will produce aerial shoots, resulting in what appears to be several new infections. The aerial shoots will produce seeds and the infestation will intensify. Trees with several active infections will then have a greater chance of being attacked by other serious pests because of reduced vigor.

One large Sitka spruce had a large hole wound with visible rot 30 to 40 feet above the ground. Although this tree was not adjacent to any existing unit, a new unit is planned near the tree. It is recommended that the tree be cut just below the large wound to reduce the chance of the tree failing. This will provide a snag for wildlife and retain the character of the site.

Two or three hemlocks appeared to have grown on the stumps of old-growth trees such that their root systems were exposed. Such trees appeared to be on "stilts." It is not certain whether this condition renders the trees prone to windthrow. However, removal of such trees should be considered if they are adjacent to valuable targets such as one tree near the boat ramp parking lot.

In general, there were very few high hazard trees or large hazardous limbs remaining in Willaby Campground, probably as a result of the conscientious District program to immediately treat hazardous situations. As part of the vegetative management plan, it was suggested that future hazard trees be treated by topping to leave a 20-30-foot snag to provide habitat for wildlife and retain part of the tree so as not to totally alter the character of the site.

Two other sites were examined following the vegetative management session. The first site was the proposed Willaby Flats Campground. The site is presently undeveloped and will contain 40 units. The stand which will contain the campground is composed of old-growth Sitka spruce, Douglas-fir, and western redcedar with a dense second-growth stand of hemlock. Dwarf mistletoe was observed in the hemlock with some trees having large dead witches'-brooms caused by the mistletoe. A few large spruce or Douglas-fir snags were found scattered throughout the area. No root disease centers or an excessive number of wounded trees were found on the site.

Although there were no disease or insect conditions that would limit using the site for a campground, western hemlock is not a preferred species in which to locate a developed recreation site. Besides the problems associated with dwarf mistletoe as discussed for the Willaby Campground, western hemlock is especially prone to heartrot associated with tree wounding. Spruce is also quite susceptible to stem decays. Ranking tree species on the site for susceptibility to heartrot from most to least would be as follows: hemlock, spruce, Douglas-fir, and cedar.

For the proposed Willaby Flats Campground, we recommend that (1) all large snags be removed or topped if adjacent to units, (2) large dead dwarf mistletoe brooms be removed if over units, (3) care should be taken to prevent excessive wounding of residual trees during campground construction activities, (4) residual trees should be preferably cedar or fir with hemlock chosen last, and (5) the site be evaluated yearly for hazard trees after development.

A third campground that was examined was the Olallie Campground which had been closed due to the prevalence of hazard trees. The campground contains several large old-growth snags of Douglas-fir. Many of the living old-growth Douglas-fir had dead tops. One large tree had fallen across the campground and appeared to be infected with *Phaeolus schweinitzii*, causal agent of butt rot in old-growth Douglas-fir.

In general, the entire old-growth stand of Douglas-fir in Olallie Campground is in a state of decline. Although not extensively examined, it is possible that most of the old-growth stand is infected with *P. schweinitzii* which is a common problem in old-growth Douglas-fir. The District plans to contact FPM pathologists to conduct a more detailed hazard tree analysis of the campground if they decide to reopen the facility.

If Forest Pest Management can be of further assistance, please contact us.

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